

Factors Relating to the Use of Mental Health Services in a Neighborhood Health Center

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THE COMPREHENSIVE NEIGHBORHOOD HEALTH CENTER that offers integrated health and mental health services has been proposed as a viable model for providing mental health services to geographically defined populations. Often targeted to low-income groups, such centers have set goals of delivering accessible, comprehensive, continuous, integrated, and family-oriented health care. While these goals have been widely espoused, few studies have examined quantitatively the patients' use of various services within

these centers (1-3). Although the theoretical advantages and organizational issues of delivering mental health services have been described, information on the use of the mental health services provided in these integrated service settings is extremely scarce (4-8).

This study was undertaken to examine data on the use of mental health services in a neighborhood health center as a first step in evaluating the direct clinical and public health impact of an integrated service delivery system. In particular, we present data on the relationship of demographic and diagnostic variables to rates and patterns of use of mental health services. We also compare findings on the study population with available national data of the National Institute of Mental Health (NIMH) and with data from the Monroe County, N.Y., Psychiatric Case Register.

The Community

The setting was the Bunker Hill Health Center (BHHC), a community-based clinic of the Massachusetts General Hospital, located in Charlestown, a Boston neighborhood with a 1975 population of 16,877. This relatively small and isolated community on a 1 square mile peninsula is surrounded by Boston harbor and by the railroad tracks at the isthmus. The

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population is largely white and of Irish heritage. Blacks constitute only 0.5 percent of the population and Spanish-speaking persons only 0.3 percent. According to the 1970 U.S. Census, the median family income was \$8,828 per year; 14 percent of Charlestown families receive public assistance. Portions of the population are in both the high moderate income and high poverty income ranges of the Mental Health Demographic Profile System (9). This disparity reflects the nature of a community that is predominantly working class, but contains substantial enclaves of white-collar professionals and of welfare recipients who live in New England's second largest public housing project. The neighborhood is relatively stable—63 percent of the families have not moved in 5 years, ranking it third in stability among Boston neighborhoods (10). In summary, Charlestown is a cohesive and stable community of limited wealth but with an unusual historical heritage and a real sense of "town pride."

The Health Center

Although the Bunker Hill Center has been described (11, 12), a brief summary is included in this report. The center opened in 1968 and by 1975 had registered approximately 85 percent of the local population. According to a study by ABT Associates, 44 percent of all medical visits by ambulatory Charlestown residents in 1973 were to the health center—ranking it first among Boston neighborhood health centers in the percentage of neighborhood residents using a health center (10). In 1975, the center recorded approximately 53,000 patient visits, including about 11,000 to its mental health unit. The health center provides medical, pediatric, surgical, mental health, nutrition, and dental services and is staffed by 38 professionals (full-time equivalents). Twelve of these work in the mental health unit and represent the disciplines of psychiatry, social work, psychology, nursing, and speech and occupational therapy.

Administratively, the health center is part of Massachusetts General Hospital, but it also serves as the Charlestown catchment area clinic for a federally funded community mental health center—the Erich Lindemann Mental Health Center. Funding comes from five sources: (a) a Children and Youth grant from the Department of Health, Education, and Welfare; (b) a supplement from the hospital for adult services; (c) patient fees; (d) the city of Boston; and (e) limited staff positions from the Lindemann Mental Health Center. Although the center is organized administratively into the tradi-

tional departments, integrated patient care is facilitated by a multidisciplinary team approach. There is a strong emphasis on the establishment of health center-wide goals for patients and families. Emphasis is on prevention, health education, and early intervention. Staff activities, such as mental health consultation to neighborhood schools and preschool screening for medical, neurological, and psychological problems, facilitate these goals.

The Data System

The health center has a central reporting system, based on Densen's prototype (13), that is linked to a computerized data retrieval system. The system has been in continuous operation with periodic revisions since the agency opened in 1968. The mental health encounter form and the computer retrieval system were altered most recently in 1974 when the diagnostic classification system of mental disorders (DSM-II) was added (14). The center has set a high priority on the proper completion and retrieval of the encounter forms and has had excellent cooperation from the clinical and administrative staff.

The system provides the flexibility for retrieving a variety of patient data (demographic, diagnostic, and treatment) for use in clinical, epidemiologic, and program evaluation studies as well as in patient billing. In particular, information is collected on each head of household. This information includes residence zip code, census tract, education, and occupation. Data on each registrant include age, sex, marital status, relation to household head, ethnic background, payment source, and referral source. The encounter form for each patient contact provides additional information including location and duration of visit, type of provider, diagnosis, presenting problem, service given, and referral source. Data from both the registration and encounter forms are collected and tabulated regularly.

Methods

Determination of use rates. For this study, data routinely collected on all patients seen by the mental health unit staff were analyzed for the first 6 months of 1975. Data from registration and encounter records were tabulated on the age, sex, marital status, payment source, and diagnosis for each individual patient. Place of residence was determined by analyzing zip code and census tract data for each household.

Although located in and targeted to the Charlestown population, the center also serves people in the surrounding communities. A zip code analysis of 562 households whose members had visits in this 6-month

period showed that 92 percent, or 519, lived in Charlestown—a fact that supports our assumption that patterns of use were largely determined by local Charlestown residents. Thus, health center use data by age, sex, marital status, and diagnosis of patients were multiplied by a factor of 0.92 to estimate the use rate for Charlestown residents according to these variables.

Social class determination. For the purpose of this study, two criteria were employed to assess the relation of socioeconomic status (SES) and use. First, Charlestown census tracts which contain public housing were identified, and all patients living in these areas were considered to be at the lower end of the socioeconomic scale and the principal target for health center services. Second, the source of payment for visits was used to determine a percentage of patients in the poverty range as indicated by their enrollment in Medicaid. Education and occupation data for head of household were not complete enough at the time of the study to use the Hollingshead two-point scale of SES for all patients (15).

Clinical methods. The DSM-II reference manual was our primary source for the diagnostic classification of psychiatric disorders (14). Minor modifications of this system were the classification of "borderline personality organization" as character disorder and the addition of "developmental lag" as a separate diagnostic category for children (16). Grouping diagnoses into nine major classes was performed accord-

ing to the system of NIMH's Division of Biometry and Epidemiology in the preparation of national pooled data (17). Of these nine major classes, the category "all other" includes neuroses (except depressive), character disorders, behavioral disorders of childhood, developmental lag, and transient situational disturbances. All forms of affective disorder, including depressive neurosis, were classified as depressive disorders.

Because Bunker Hill patients receive a principal diagnosis for each visit, multiple diagnoses are recorded for each patient over a 6-month period. Within each diagnostic category a patient's principal diagnosis was recorded only once. However, a patient's diagnoses across diagnostic categories—that is, in more than one category—were included for two reasons: (a) it was not possible within the present system to assign one principal diagnosis and (b) multiple diagnoses could represent the presence of more than one disorder. Methods for assigning one principal diagnosis within this record system are currently being evaluated. Although it is not directly comparable because of differing methodologies in obtaining data, the distribution of Bunker Hill Health Center diagnoses of mental disorder is presented to allow for general comparisons with NIMH data and other reports on the distribution of diagnoses.

Results

Overall use. In the study period, January through June 1975, 822 Charlestown residents visited the

Table 1. Patients of Bunker Hill Health Center using mental health services, Charlestown population, and use rate, by age and sex, January–June 1975

Age group and sex	All patients	Charlestown residents using services		Total Charlestown population, 1975 ²		6-month rate per 1,000 population for Charlestown residents
		Estimated number ¹	Percent	Number	Percent	
Total, all ages	894	822	100.0	16,877	100.0	48.7
Male	378	348	42.3	8,202	48.6	42.4
Female	516	474	57.7	8,675	51.4	54.6
0–17 years	354	325	39.6	5,704	33.8	57.0
Male	222	204	24.8	2,953	17.5	69.1
Female	132	121	14.8	2,751	16.3	44.0
18 or more years	540	497	60.4	11,173	66.2	44.5
Male	156	143	17.4	5,249	31.1	27.2
Female	384	354	43.0	5,924	35.1	59.8

¹ 92 percent of households in which 1 or more persons received health services during the reporting period had a Charlestown residence zip code. This proportion was applied to all patients using mental health services for each age-sex category to estimate the number of Charlestown residents using services.

² Total population count was obtained from a 1975 household census of Charlestown conducted by the Massachusetts Department of Census. This count was distributed by age and sex groups according to the age-sex distribution for Charlestown in the 1970 U.S. Census.

Table 2. Patients of Bunker Hill Health Center 18 years and older using mental health services, Charlestown population, and use rate, by marital status, January–June 1975

Marital status	All patients	Charlestown residents using services		Adult Charlestown population, 1975 ²		6-month rate per 1,000 population for Charlestown residents
		Estimated number ¹	Percent	Number	Percent	
Total	540	497	100.0	11,173	100.0	44.5
Single	165	152	30.6	3,275	29.4	46.4
Married	258	237	47.7	5,536	49.7	42.8
Widowed	43	40	8.0	1,437	12.9	27.8
Separated and divorced .	74	68	13.7	891	8.0	76.3

¹ 92 percent of all households in which 1 or more persons received services during the reporting period had a Charlestown residence zip code. This proportion was applied to all adult patients using mental health services for each marital status category to estimate the number of Charlestown residents using services.

² Total population count was obtained from a 1975 household census of Charlestown conducted by the Massachusetts Department of Census. The count was distributed by marital status according to the proportions obtained in the 1970 U.S. Census for Charlestown.

mental health unit. These visits represent a 6-month use rate of 48.7 per 1,000 resident population, or approximately 5 percent of the population using mental health services during that period. Preliminary 1-year data indicate that use rates increased approximately a third over the 6-month use rates; the overall 1-year rate was 64.6 per 1,000 Charlestown residents.

Age and sex characteristics. Table 1 presents the distribution of patients receiving mental health services and the population of Charlestown, by age and sex. In addition, age- and sex-specific use rates per 1,000 Charlestown residents are shown. Children 0–17 years represented 39.6 percent of the total caseload and had a use rate of 57.0 per 1,000, contrasting with a rate of 44.5 for adults. Boys and women are the biggest users of services, with rates of 69.1 and 59.8 per 1,000 respectively. Men 18 years or older had the lowest rate at 27.2 per 1,000, followed by girls under 18 years who used services at a rate of 44.0 per 1,000.

Marital status. Table 2 presents the distribution by marital status of persons 18 and older using mental health services, the Charlestown adult population, and the rates per 1,000 population. The married adults constituted 47.7 percent of all adults using these services—services which were used by residents at a rate of 42.8 per 1,000 married adults in Charlestown. Single adults constituted the second largest group of patients (30.6 percent) and had a rate of 46.4 per 1,000, which was not significantly higher statistically than that for married adults. The highest utilization rate per 1,000 was that of sepa-

rated and divorced adults—a rate of 76.3 compared with the lowest rate, 27.8, for the widowed.

Social class. With regard to the available measures of relative socioeconomic status, fully 55.7 percent of patients using mental health services paid through Medicaid. We also found that 60.9 percent of households with members coming to the mental health unit lived in census tracts which contain public housing—tracts which include only 48.5 percent of all Charlestown households. An additional analysis of subtracts within the larger census tracts revealed that 42.6 percent of the Charlestown households with members using mental health services definitely lived in the public housing units. An analysis of the 30 percent of households for which education and occupation were available revealed that 93.2 percent were in the two lowest Hollingshead social classes, IV and V, with the remainder in class III.

The tendency for the center to draw patients from the lower end of the SES scale is shown by a census tract analysis in table 3. In the three tracts with public housing (Nos. 402, 403, and 408) BHHC patients receiving mental health services were over-represented, but patients living in tracts without public housing (Nos. 401, 404, 405, 406, and 407) were under-represented in the center's caseload. A chi square test showed these distribution differences to be significant at a level of $P < .001$.

Clinical characteristics. The distribution of patients according to the DSM II psychiatric diagnosis system is presented in table 4 for the 999 diagnoses that were attributed to 822 separate patients (1.2 diagnoses per patient). The previously mentioned

Table 3. Distribution by census tract of households of Bunker Hill Health Center patients using mental health services and all Charlestown residents, January-June 1975

Census tract of residence ¹	Households of patients		Estimated households in Charlestown, 1975 ²	
	Number	Percent	Number	Percent
All households ..	519	...	5,417	100.0
Tract recorded	458	100.0	...	...
³ No. 402	82	17.9	676	12.5
³ No. 403	117	25.5	1,161	21.4
³ No. 408	80	17.5	794	14.6
No. 401	32	7.0	584	10.8
No. 404	45	9.8	710	13.1
No. 405	50	10.9	697	12.9
No. 406	7	1.5	134	2.5
No. 407	45	9.8	661	12.2
Tract not recorded	61	...	...	...

¹ Of 606 households with members using mental health services, 519 were known by their zip code to reside in Charlestown and an additional 43 resided outside Charlestown. No address was known for 44 households.

² Number of households was estimated for 1975 by adjusting the 1970 U.S. Census data by the number of new housing units built in each census tract from 1970 to 1975.

³ Contains public housing project.

Note: $\chi^2 = 32.37$; d.f. = 7; $P < .001$

duplication of diagnoses across diagnostic categories makes it possible, for example, for a patient with an undiagnosed condition on initial examination who is later found to have schizophrenia to be counted once under schizophrenia and once under no mental disorder. Although the table provides the complete diagnostic distribution, a few highlights deserve mention. The largest percentage of diagnoses (46.9) was the "all other" category. The category contains many of the less severe diagnoses and those of children and relatives of identified patients who may have no mental disorder. The second largest percentage of diagnoses (26.3 percent) were accounted for by the category, "no mental disorder or diagnosis deferred." This group of diagnoses includes those of relatives of patients and patients with speech and language problems.

With regard to the more severe diagnoses, schizophrenia accounted for only 6.6 percent of the diagnoses and 8 percent of the 822 patients, and depression for 13.3 percent of the diagnoses and 16 percent of the patients. These represent diagnosis rates per 1,000 residents of approximately 3.9 for schizophrenia and 7.9 for depressive disorders—relatively high rates

Table 4. Distribution of psychiatric diagnoses for Charlestown residents receiving mental health services at Bunker Hill Health Center and proportion of Charlestown resident patients and of the Charlestown population receiving diagnoses, January-June 1975

Principal diagnosis ¹	Number of resident patients receiving diagnoses ²	Percent distribution—		6-month rate per 1,000 for Charlestown's 16,877 residents
		Of diagnoses	Of resident patients receiving diagnoses	
Total patients:				
Unduplicated	822	....	³ 100.0	⁴ 48.7
Duplicated by diagnosis	999	100.0	....	....
Mental retardation	25	2.5	3.0	1.5
Organic brain syndrome	10	1.0	1.2	.6
Schizophrenia	66	6.6	8.0	3.9
Depressive disorders	133	13.3	16.2	7.9
Other psychoses	7	.7	.8	.4
Alcohol disorders	24	2.4	2.9	1.4
Drug disorders	3	.3	.4	.2
All other	⁴ 468	46.9	56.9	27.7
Neuroses except depressive	79	....	....	....
Character disorders	159	....	....	....
Psychophysiological disorders	9	....	....	....
Transient situational disturbances	228	....	....	....
Behavior disorders of childhood	73	....	....	....
Developmental lags	70	....	....	....
No mental disorder or diagnosis deferred	263	26.3	32.0	15.6

¹ Diagnostic distribution according to NIMH categories of the DSM-II classification to enable comparison with national data (17).

² Persons are unduplicated within diagnostic categories but duplicated across categories. A total of 999 diagnoses were attributed to 822 Charlestown resident patients (92 percent of the 1,086 diagnoses among

the 894 total patients seen during the study period) for an average of 1.21 diagnoses per patient.

³ Sum of individual diagnostic categories exceeds the total because of multiple diagnoses per patient.

⁴ These 468 persons received a total of 618 specific diagnoses within the "all other" diagnostic group.

for treated disorders of this type, as we discuss in the following section.

Comparisons with Other Studies

Overall utilization. The mental health unit's 6-month utilization rate of 48.7 per 1,000 population may be compared to the minimal 1-year (1973) estimated national rate of 17.9 per 1,000 for private and public outpatient services reported by Regier and Goldberg (18). A 1-year rate of 27.1 per 1,000 for utilization of both inpatient and outpatient mental health services in Monroe County, N.Y., was described by Babigian in his study based on that county's psychiatric case register (19).

Age and sex characteristics. For the latest year in which NIMH national data by patients' ages are available, children under 18 years represented 27.3 percent of all outpatient episodes in 1971, when the total outpatient utilization rate for all ages was estimated (with adjustment for multiple episodes per person) to be approximately 10.5 persons per 1,000 per year, or about 1 percent of the total population (17, 20). Patient care episodes were converted to number of persons by a factor based on data from the Maryland Psychiatric Case Register. A conversion factor for outpatient episodes of 0.93 person per episode was applied to an outpatient rate of 1,129 episodes per 100,000, which equals 10.5 persons per 1,000 population.

The Bunker Hill Health Center data indicate that children constituted 39.6 percent of all patients using mental health services, and the total outpatient use rate was 48.7 per 1,000, or about 5 percent of the population in a 6-month period. A freestanding satellite mental health clinic in New York City reported a similarly high rate—children constituted approximately 47 percent of its patient population. This clinic had an annualized use rate of 3.0 per 1,000 population in that area (21). The 6-month rate for those under 18 was 57.0 per 1,000 in the BHHC study in contrast to Monroe County's combined inpatient-outpatient rate of 14.2 per 1,000 for those 0-14 years and the 1971 national outpatient rate (with adjustment for multiple episodes per person under age 18) of 8.3 per 1,000 (17, 19, 20).

Marital status. Although reference populations and data collection methods differed, comparisons of use data according to marital status may be made with the statistics of the National Institute of Mental Health, using admissions to care rather than patient episodes of persons receiving care. The 1971 age-

adjusted national rates for adults 18 and older show that married persons used outpatient services at a rate of 3.7 admissions per 1,000, single persons had a rate of 9.7, widowed persons 13.3, and divorced or separated persons 17.5. These rates were 2.6, 3.6, and 4.7 times as great as those of married persons respectively (22). In contrast, the 6-month data for the Bunker Hill center showed that married persons used services at a rate of 42.8 per 1,000, the rates for the single were 46.4, the widowed 27.8, and the separated or divorced 76.3. These were 1.1, 0.6, and 1.8 times as great respectively as that of the married.

Social class. The Monroe County study researchers found a 1-year combined inpatient-outpatient utilization rate of 43.6 per 1,000 county residents and a rate of 40.7 per 1,000 for persons determined to be in the lower two social classes (designated IV and V on the Hollingshead scale). These rates approach the 48.7 rate for outpatient services alone in the population served by the Bunker Hill Health Center—the bulk of whom are also in the lower two, presumably equivalent, social classes.

Clinical characteristics. Comparisons between the health center and national data on the distribution of diagnoses for outpatient episodes is even more difficult because of methodological differences in data collection. The most recent NIMH diagnostic data show the following distribution for outpatient episodes of psychiatric services in 1971: mental retardation 3.3 percent, organic brain syndromes 2.5 percent, schizophrenia 15.7 percent, depressive disorders 12.7 percent, other psychoses 1.5 percent, alcohol disorders 5.4 percent, drug disorders 2.1 percent, all other disorders 44.7 percent, and undiagnosed 12.1 percent (17). The NIMH percentages are based on a total outpatient utilization rate of approximately 10.5 per 1,000 population as opposed to the Bunker Hill outpatient per-capita utilization rate of 48.7 per 1,000.

The most significant absolute differences between the Bunker Hill and NIMH data occur with diagnoses of schizophrenia—the Bunker Hill percentage is less than half that of NIMH—and with the undiagnosed category—the Bunker Hill percentage is slightly more than twice that of the NIMH data. However, if one considers that the center's utilization rates are approximately five times as high as those reported nationally, it appears that population-based rates for persons with diagnoses of schizophrenia are more than twice as high in the population served by the center as they are nationally. Utilization rates for patients with depressive dis-

orders and the milder diagnoses such as transient situational disorders, neuroses, and developmental lags included in the "other" category are approximately six times as high as the national rates.

Significant problems exist in comparing the percentage distributions of diagnoses derived from patient care episodes reported by many outpatient settings to NIMH with the percentage of patients having a given disorder diagnosed in one neighborhood health center. Nonetheless, the data suggest that the center was serving seriously disturbed patients at rates equal to or higher than the national rate for outpatient services and also had much higher utilization rates for patients with less severe disorders.

Discussion

This study represents an initial attempt to describe the utilization, demographic, and diagnostic characteristics of patients using the mental health unit of a comprehensive neighborhood health center. Comparisons with nationally pooled data from NIMH and with other data on mental health services are made for the purpose of placing the neighborhood health center's data in some understandable perspective. We recognize that these comparisons can only be approximate because of differences in methodology and the time frame used in obtaining the data from these various sources.

In our 6-month study of a comprehensive neighborhood health center, we found that about 5 percent of the community's population made use of outpatient mental health services. Strikingly, this rate is approximately five times as high as that of the 1-year 1971 total utilization rate and almost three times as high as the 1973 1-year rate for outpatient mental health services estimated for the United States by Regier and Goldberg (17, 18). For a comparable data base, the combined inpatient and outpatient services recorded in the Monroe County case register, the rate was slightly more than 4 percent for the population in social classes IV and V (19).

Our results suggest that the target population in the lower SES categories accounted for the majority of patients using mental health services in the neighborhood health center. All indices employed—Medicaid payment, social class, and census tract housing characteristics—reflected this pattern. Thus, the neighborhood health center seems to be a particularly effective system for attracting patients from low income backgrounds into mental health treatment.

In a further analysis of patients' age, sex, and marital status characteristics, it was noted that chil-

dren and married adults constituted an unusually high proportion of the total number of patients using the health center in comparison with the relative respective proportions of the patients using the facilities that report data to NIMH. These comparisons suggest that mental health services at the neighborhood health center are delivered primarily to children and adult members of intact families. Although this finding may not be specific to a comprehensive neighborhood health center, as demonstrated in other studies, it would seem that a community-based clinic is able to attract families in larger numbers than is true of more traditional outpatient services (21).

Diagnostic data from the center's mental health unit indicated that the unit sees patients with a wide range of mental disorders. The formal linkage with the local community mental health center, in which Bunker Hill functions as a day treatment and outpatient facility for part of the center's catchment area, and the State's emphasis on returning patients to the community may account for the relatively high rates for patients with more severe schizophrenic or depressive disorder diagnoses. In addition, the emphasis on preventive intervention for children, the involvement of family members and friends who are important in the patients' lives, and the frequent referrals for evaluation that are encouraged by the integrated health-mental health setting all tend to produce relatively high rates of use by persons with less severe diagnoses and those with no mental disorder.

The data for the 6-month period appears to support the hypothesis that mental health services provided in an integrated delivery system near the patient's home may achieve high levels of acceptability, accessibility, and utilization. Although factors such as the true prevalence rates for mental disorders in the community, service delivery patterns, patients' ethnic backgrounds, and staffing patterns of the center could not be compared with corresponding factors nationally and may contribute to Charlestown's relatively high utilization rate, our experience suggests several features of the health center that enhance referral to and use of mental health services.

In particular, we found that the close working relationship afforded by multidisciplinary teams decreases the mystery of psychiatric methods and increases the medical providers' awareness of psychological factors in physical illness. Health professionals in this setting seemed to have developed effective referral skills that were used to facilitate patient acceptance and continued use of mental health serv-

ices. Receiving services in a comprehensive health center also seems to decrease the community stigma associated with seeking psychiatric treatment. Mental health care may be perceived as a more legitimate component of total health care by both medical staff and community patients if mental health services are integrated into a single center.

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SYNOPSIS

JACOBSON, ALAN M. (Bunker Hill Health Center, Massachusetts General Hospital, Charlestown), REGIER, DARREL A., and BURNS, BARBARA J.: *Factor relating to the use of mental health services in a neighborhood health center. Public Health Reports, Vol. 93, May-June, 1978, pp. 232-239.*

Six-month utilization data are presented for the mental health unit of a comprehensive neighborhood health center. Almost 5 percent of the 16,877 people in Charlestown, Mass., used these services at a rate

of 48.7 per 1,000 residents. Nearly all the residents of this Boston neighborhood were white; the median family income was \$8,828 annually; and 14 percent of the families received public assistance.

Age, sex, marital status, census tract of residence, and diagnostic factors were quantitatively related to the use of services. Those 0-17 years represented 39.6 percent of the total caseload and had a utilization rate of 57.0 per 1,000. Boys and women were the biggest users of service, and married adults constituted 47.7 percent of the adults using the serv-

ice. About 55 percent of the patients paid through Medicaid.

During the study period 999 diagnoses were recorded for 822 separate patients, or 1.2 diagnoses per patient. Findings from the center's caseload are compared with utilization data for other mental health services and available national data. The study data demonstrate that the health center's goals of providing accessible, family-oriented, comprehensive mental health services that are targeted particularly to the lower socioeconomic groups in the community were largely accomplished.